Docket No. TRANSMITTATOF FORMAL DRAWINGS POU920020018US1 In Re Application Of: Knop et al. MAY 0 9 2002 Art Unit Examiner Filing Date Serial No. 2152 February 15, 2002 10/077,051 Invention: Method for Controlling Group Membership in a Distributed Multinode Data Processing System to **Assure Mutually Symmetric Liveness Status Indications** RECEIVED Address to: **Assistant Commissioner for Patents** MAY 1 5 2002 Washington, D.C. 20231 **Technology Center 2100** Transmitted herewith are: 25 sheets of formal drawing(s) for this application. Each sheet of drawing indicates the identifying indicia suggested in 37 CFR Section 1.84(c) on the reverse side of the drawing. **COPY OF PAPERS ORIGINALLY FILED**

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Dated: Mty 2, 2002

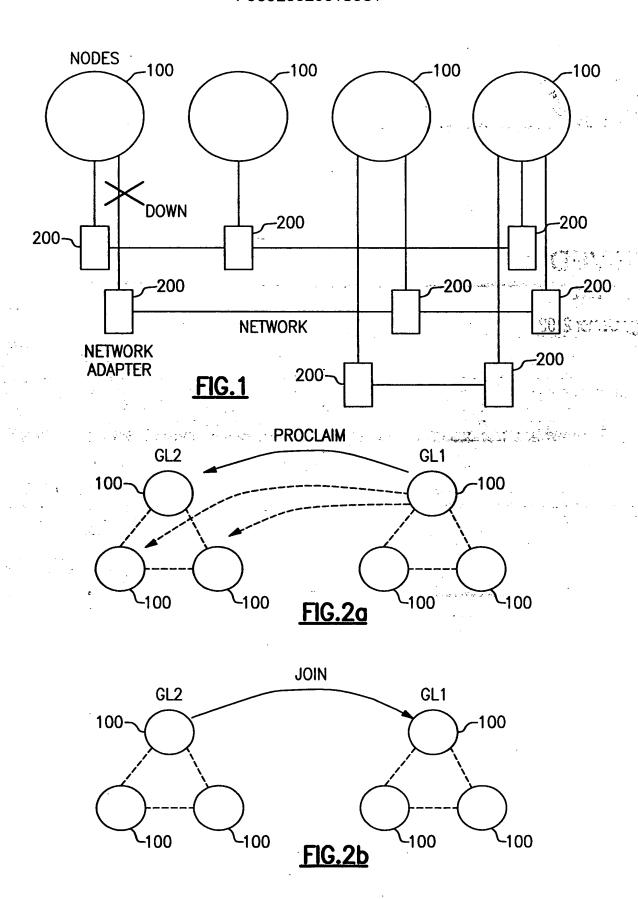
I certify that this document and attached formal drawings are being deposited on 5-2-2-00 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

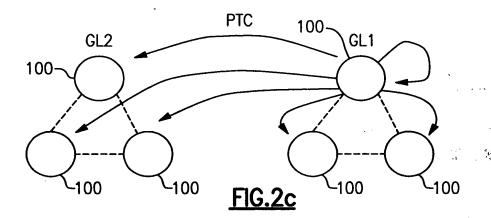
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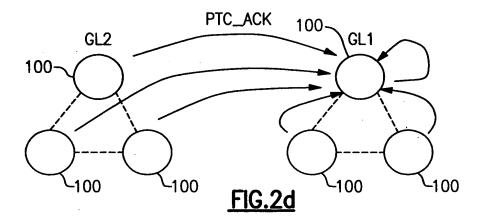
SUSAN L. PHELPS

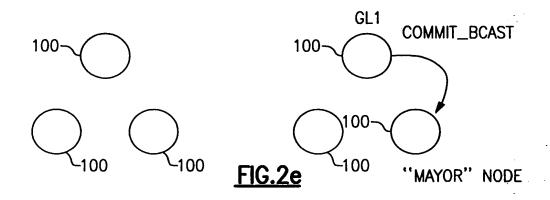
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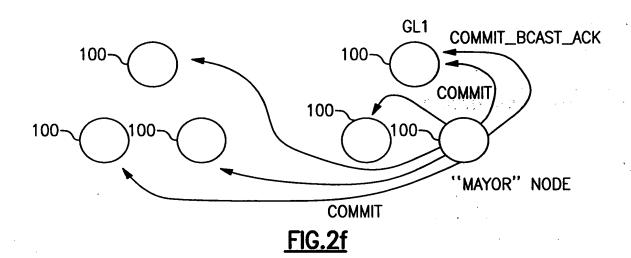
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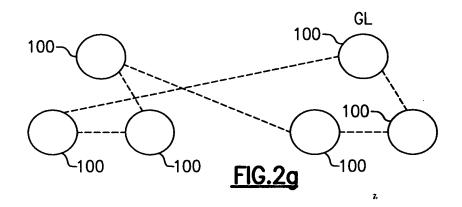


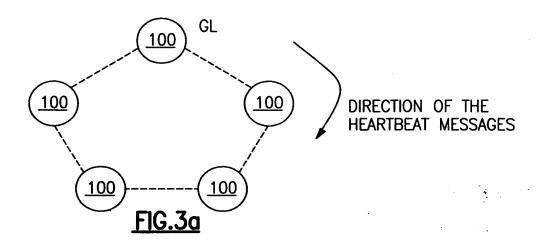


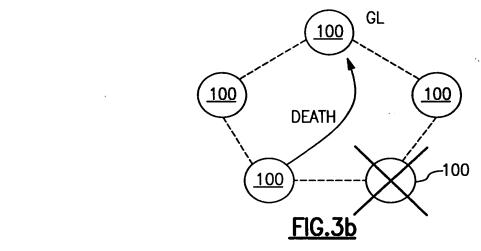


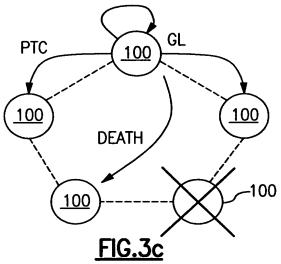


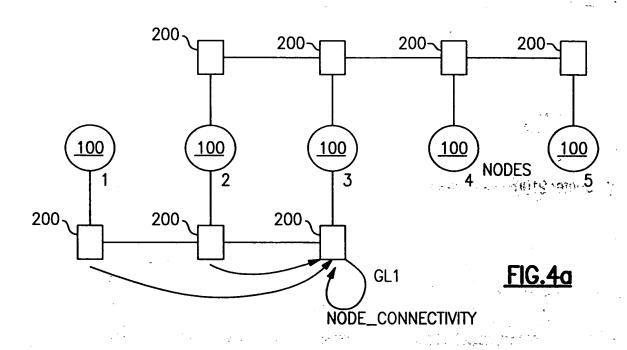


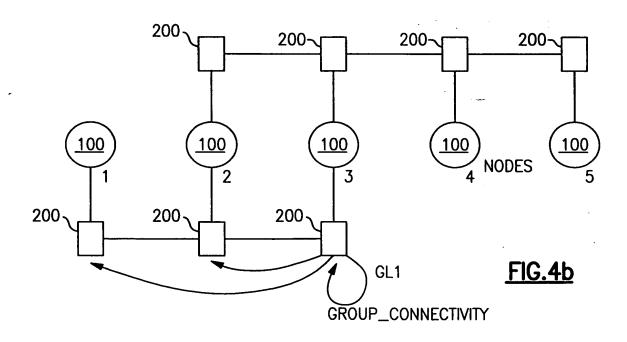


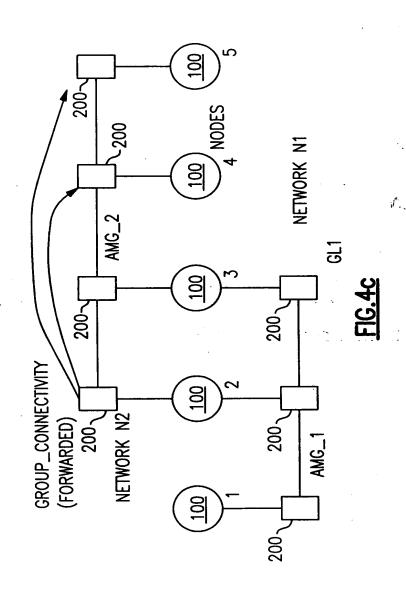


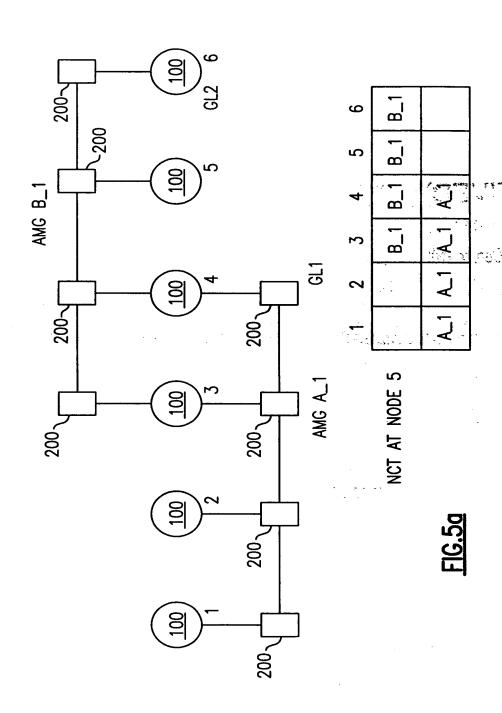


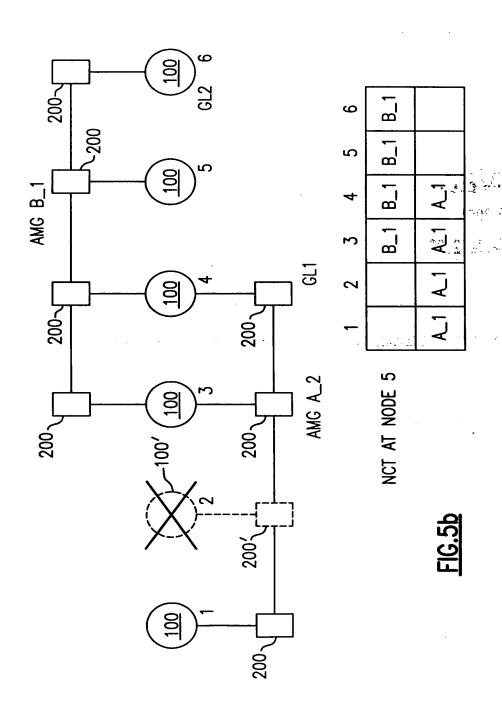


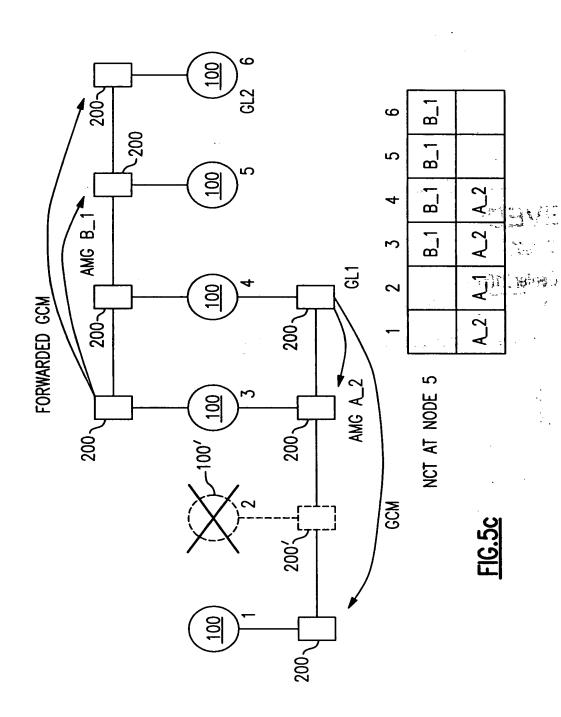












NETWORK A: 10 SECONDS DETECTION TIME NETWORK B: 40 SECONDS DETECTION TIME

NODES 1 AND 2 ARE FORMING AMGs ON NETWORKS A AND B

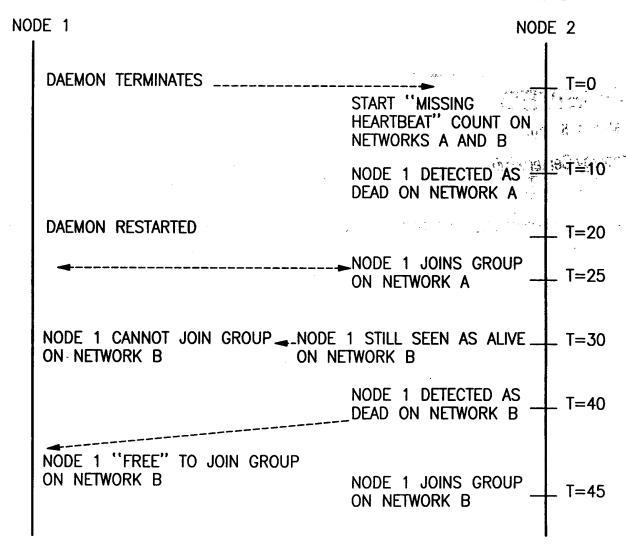


FIG.6

NODE 1 (NOT GL OR CP)

NODE 2 AND OTHERS

NODE 1

DEAD

ADAPTER GLITCH: IT CAN RECEIVE BUT NOT SEND PACKETS

START "MISSING HEARTBEAT" COUNT

START "MISSING HEARTBEAT" COUNT

NODE 1 DETECTED AS DEAD: OTHERS FORM NEW AMG

UPSTREAM NEIGHBOR DETECTED AS DEAD

DOES NOT HEAR BACK FROM GL OR CP: "DISSOLVE" GROUP AND FORM SINGLETON UNSTABLE AMG

ADAPTER GLITCH ENDS: RESUMES NORMAL OPERATIONS

NODE 1 JOINS GROUP

NEVER SEES OTHER NODES GOING DOWN

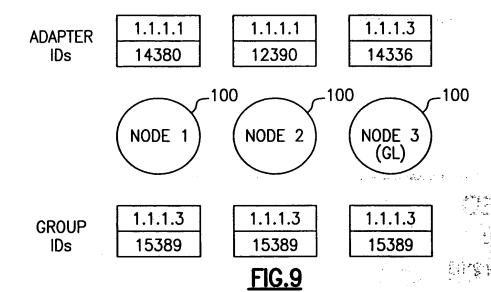
FIG.7

NODE 2 AND NODE 1 (GL OR CP) **OTHERS** ADAPTER GLITCH: IT START "MISSING CAN RECEIVE BUT NOT HEARTBEAT" COUNT SEND PACKETS START "MISSING HEARTBEAT" COUNT

NODE 1 DETECTED AS DEAD: OTHERS FORM NEW AMG UPSTREAM NEIGHBOR DETECTED AS DEAD ADAPTER GLITCH ENDS: RESUMES NORMAL OPERATIONS SENDS PTC TO ALL PEERS NODE 1 EXCEPT UPSTREAM NEIGHBOR DEAD REPLIES WITH PTC ACK SENDS COMMIT TO ALL PEERS NODE 1 JOINS GROUP NEVER SEES OTHER NODES GOING DOWN

FIG.8

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MESSAGE TYPE

SOURCE ADAPTER ID

SOURCE GROUP ID

DESTINATION ADAPTER ID

DESTINATION GROUP ID

PAYLOAD

FIG.10

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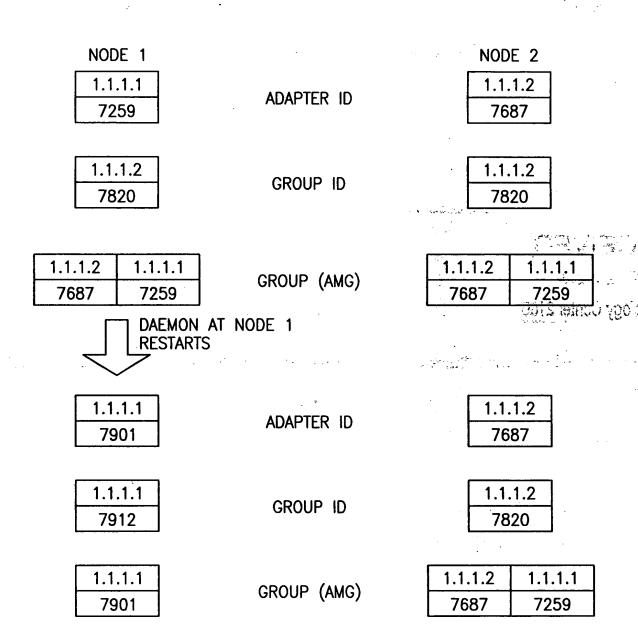
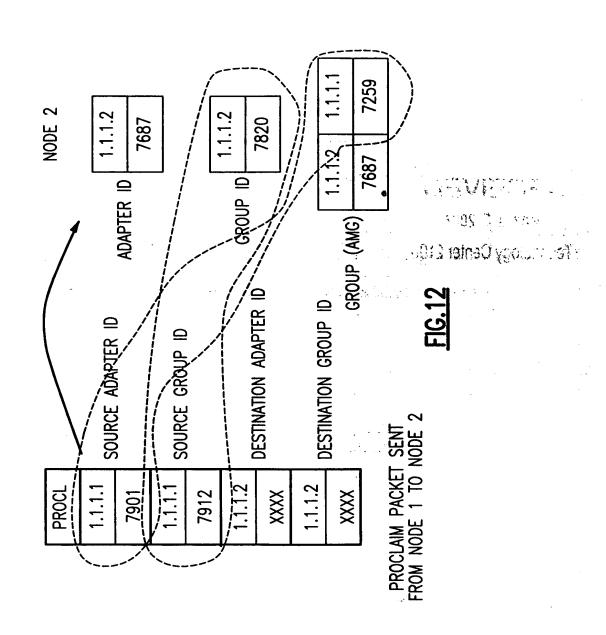
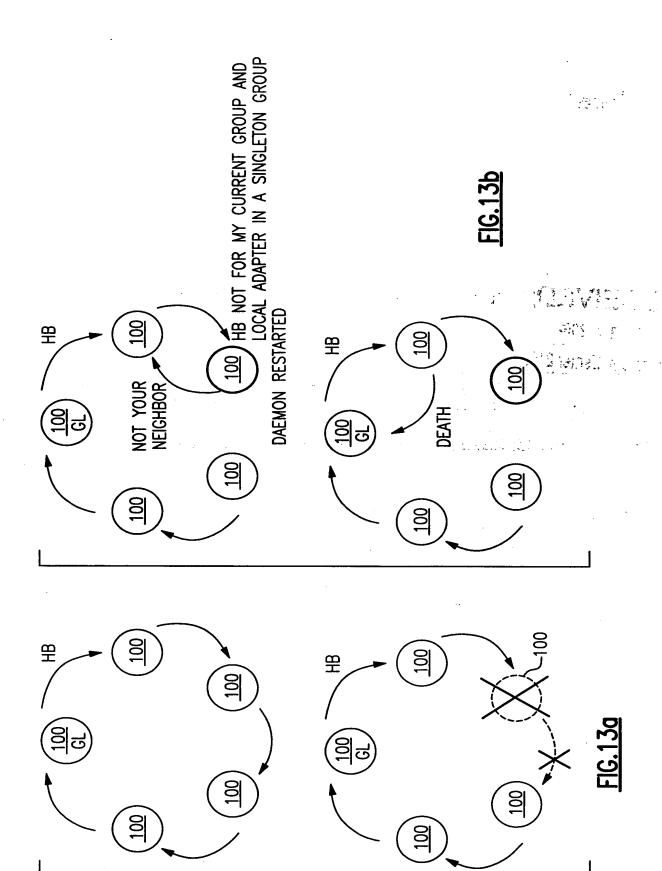


FIG.11



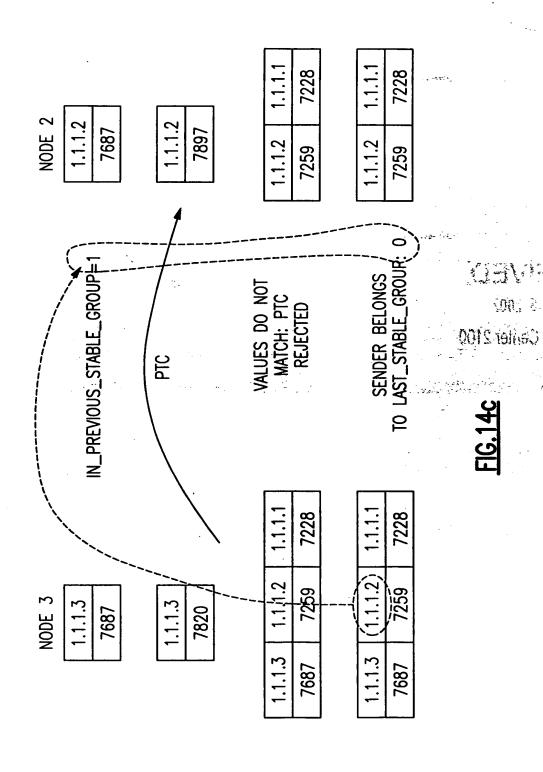


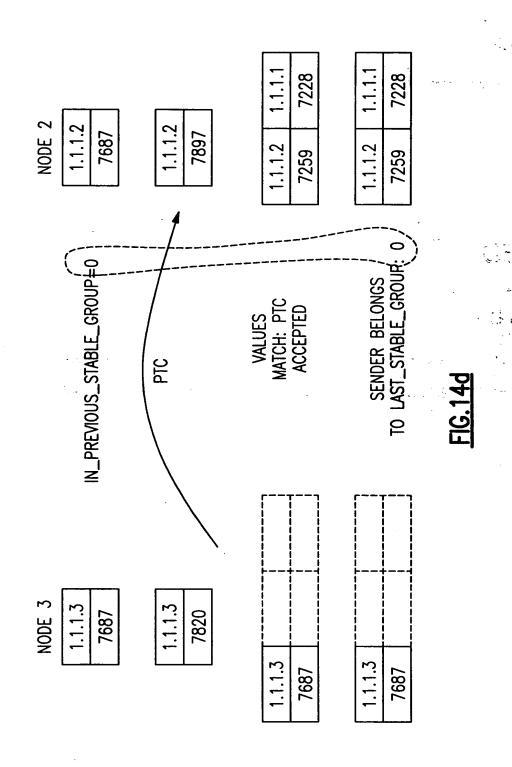
NODE 2 1.1.1.2 7687	7820	1.1.1.3 1.1.1.2 1.1.1.1 7687 7259 7228	1.1.1.3 1.1.1.2 1.1.1.1 7687 7259 7228
ADAPTER ID	GROUP ID	GROUP (AMG)	LAST_STABLE_GROUP
NODE 3 (GL) 1.1.1.3 7687	7820	1.1.1.3 1.1.1.2 1.1.1.1 7687 7259 7228	1.1.1.3 1.1.1.2 1.1.1.1 7687 7259 7228 COMMUNICATION GLITCH IN NODE 3'S ADAPTER

1G.14a

NODE 2 1.1.1.2 7687	7897	7259 7228	7259 7228
ADAPTER 10	GROUP ID	GROUP (AMG)	LAST_STABLE_GROUP
		7228	7228
40DE 3 1.1.1.3 7687	7820	7259	1.1.1.2
1.1.1.3 7687	1.1	7687	7687

FIG. 14b





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3		7228
NODE 3 (GL) 1.1.1.3 7687	7820	7259
		1.1.1.3
ADAPTER ID	GROUP ID	GROUP (AMG)
		7228
NODE 1 1.1.1.1 7228	7820	7259
		7687

7687

LAST_STABLE_GROUP

COMMUNICATION GLITCH IN NODE 1'S ADAPTER.

7259

7687

NODE 3 1.1.1.3 7687	7884	1.1.1.3 1.1.1.2 7687 7259	1.1.1.3 1.1.1.2 7687 § 7259
ADAPTER 10	GROUP ID	GROUP (AMG)	LAST_STABLE_GROUP
		1.1.1.1	1.1.1.1
1.1.1.1 7228	7820	1.1.1.2	1.1.1.2
		7687	1.1.1.3

FIG. 15b

NODE 3 1.1.1.3 7687	7884	.3 1.1.1.2	7 7259	Part of the State
		7687	1.1.1.3 7687	
ADAPTER ID	GROUP ID	GROUP (AMG) UNSTABLE	LAST_STABLE_GROUP	FIG. 15c
		7910	1.1.1.1	
1.1.1.1 7910	7913		1.1.1.2	
			1.1.1.3	

